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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/867,098	05/29/2001	Yasunori Takahashi	NEC 01FN014	6453

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EXAMINER

ANYASO, UCHENDU O

ART UNIT PAPER NUMBER

2675

DATE MAILED: 09/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/867,098

Applicant(s)

TAKAHASHI, YASUNORI

Examiner

Uchendu O Anyaso

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. <u>13</u> . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

1. **Claims 1-15** are pending in this action.

Claim Rejections - 35 USC ' 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-3, 8-10 and 15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara (U.S. 6,388,678) in view of *Hinson* (U.S. 5,808,628), and further in view of *Hashimoto* (U.S. 5,245,444).

Regarding **independent claims 1 and 15**, and for **claims 2 and 3**, Kasahara teaches a display in the form of a plasma display panel comprising a first input terminal 2 that receives an analog input signal (see input to A/D converter 8, figure 9 at 8).

Also, Kasahara teaches how the A/D converter 8 is connected to the first input terminal 2 (figure 9 at 2).

Furthermore, Kasahara teaches a first switch in the form of an image characteristic determining device 30 which selects for output between a digital signal outputted from the A/D converter 8 via the reverse gamma correction device 10, peak level detector 26 and average level detector 28, and a digital signal inputted from the second input device via the vertical synchronizing frequency detector 36 (see figure 9 at 10, 26, 28, 36).

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However, Kasahara does not teach a second input terminal for receiving a digital image signal. On the other hand, Hinson teaches such a feature by teaching how a video data is inputted to the video store 11 via an input selector 12 which includes both an analog input and a digital input to enable data to be input in either analog or digital format (column 5; lines 30-37, figure 2 at 11-15).

Thus, it would have obvious to a person of ordinary skill in the art to combine Kasahara and Hinson because while Kasahara teaches teaches a first switch in the form of an image characteristic determining device 30 which selects for output between a digital signal outputted from the A/D converter 8 and a digital signal inputted from the second input device via the vertical synchronizing frequency detector 36 (see figure 9 at 10, 26, 28, 36), Hinson teaches how such a second input terminal would receive a digital image signal and an input selector 12 which includes both an analog input and a digital input would enable data to be input in either analog or digital format (column 5, lines 30-37, figure 2 at 11-15). The motivation for combining these inventions would have been to achieve a display device capable of being responsive to user operable different types of input means (column 4, lines 20-33).

Furthermore, Kasahara teaches a display gradation adjusting device 14 that converts a digital signal outputted from the image characteristic determining device 30 into a signal indicative of a level of pseudo gradation (see column 14, lines 14-30, figure 9 at 14, 30).

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Also, Kasahara teaches an error diffusion circuit 62", which converts a signal indicative of pseudo gradation by an error diffusion method (column 27, lines 8 through column 28, line 3, figures 23, 24A, 24B).

Furthermore, Kasahara teaches a dither pattern circuit 62' which converts a digital signal into a signal indicative of a level of pseudo gradation by a dithering method (see column 26, lines 35 through column 27, line 7, figures 21, 22A-22H).

However, Kasahara and Hinson do not teach a second switch that selects for output between an output signal of an error diffusion circuit and output signal of a dither pattern circuit. On the other hand, Hashimoto teaches this concept by teaching a second switch in the form of a multiplexer 111 that selects between the output of a dither processor 110 and an error diffusion processor 104 (figure 2, 7, 9 at 104, 110, 111).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Kasahara, Hinson and Hashimoto because while the combination of Kasahara and Hinson teach a graduation circuit comprising a first input terminal 2 which receives an analog input signal (see input to A/D converter 8, figure 9 at 8), and a second input terminal for receiving a digital image signal, Hashimoto teaches a second switch that selects for output between an output signal of an error diffusion circuit and output signal of a dither pattern circuit. The motivation for combining these inventions would have been to reduce the difference in density between the dither processing and error processing at the time of output (column 8, lines 63 through column 9, line 2).

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Regarding **claims 8-10**, in further discussion of claim 1, Kasahara teaches a data driver 20 which receives an output of the second switch i.e., spatial density changing circuit 62, and a PDP 24 that is driven by the data driver 20 (see figure 19, 20 at 20, 24, 62).

4. **Claims 4-7 and 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kasahara (U.S. 6,388,678) in view of *Hinson* (U.S. 5,808,628), and further in view of *Hashimoto* (U.S. 5,245,444), as in claim 1 above, and further in view of *Miller et al* (U.S. 5,014,333).

Regarding **claims 4-7**, in further discussion of claims 1, Kasahara discloses the concept of pseudo-contour noise (column 3, line 66 through column 4, line 5). However, neither Kasahara, Hinson nor Hashimoto teach how a noise detector determines whether an error diffusion or dither pattern is outputted. On the other hand, Miller et al teaches this concept by teaching how an image processor converts a multiple gray-level image to a bi-tonal image using both error diffusion and ordered dither by utilizing noise filters 32, 100 and comparator 22 such that smooth transitions are achieved between ordered dither and error diffusion (column 5, lines 47-51; column 6, lines 5-12, 39 through column 7, lines 52, figure 2 at 32, 20).

Thus, it would have been obvious to a person of ordinary skill in the art to combine Kasahara, Hinson, Hashimoto, and Miller because while the combination of Kasahara, Hinson and Hashimoto teach how a gradation circuit that utilizes both an error diffusion circuit and a dither pattern circuit, Miller et al teaches the concept of

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achieving an image processor that converts a multiple gray-level image to a bi-tonal image using both error diffusion and ordered dither by utilizing noise filters 32, 100 and comparator 22 (column 5, lines 47-51; column 6, lines 5-12, 39 through column 7, lines 52, figure 2 at 32, 20). The motivation for combining these inventions would have been to achieve smooth transitions between ordered dither and error diffusion (column 5, lines 47-51).

Regarding **claims 11-14**, in further discussion of claim 4, Kasahara teaches a data driver 20 which receives an output of the second switch i.e., spatial density changing circuit 62, and a PDP 24 that is driven by the data driver 20 (see figure 19, 20 at 20, 24, 62).

Response to Arguments

5. Applicant's arguments filed December 22, 2003 have been fully considered but they are moot in view of the new grounds of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Uchendu O. Anyaso whose telephone number is (703) 306-5934. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Saras, can be reached at (703) 305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

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Washington, D.C. 20231

or faxed to: (703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist). Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Uchendu O. Anyaso

09/05/2004



DENNIS-DOON CHOW
PRIMARY EXAMINER